1   1.   A method for processing data comprising:

2   (a)   converting a stream of synchronous serial data associated with a source

3 time slot into a plurality of parallel data units;

4   (b)   constructing, during a synchronization interval, at least one subpacket in

5 memory from the plurality of parallel data units;

6   (c)   storing memory context information, including a destination time slot

7 identifier, for each subpacket associated with the source time slot;

8   (d)   constructing a data packet in memory, the data packet including at least

9 one synchronization tag identifying the synchronization interval, a plurality of

10 subpackets, and the respective memory context information associated with each of the

11 subpackets; and,

12   (e)   providing the data packet to a receiving mechanism.

1   2.   The method of claim 1 wherein the receiving mechanism comprises an

2 asynchronous switch and the method further comprises:

3   (f)   receiving from the asynchronous switch the data packet at a destination

4 and disassembling the data packet into subpackets.

1   3.   The method of claim 2 wherein (f) comprises:

2   (f1)   directing a subpacket into a play-out memory buffer based on the

3 destination time slot identifier associated with the subpacket.

1   4.   The method of claim 2 wherein (f) comprises:

2   (f1)   directing a subpacket into a location within a play-out memory buffer

3 based on the synchronization tag associated with the subpacket.

1   5.   The method of claim 2 wherein (f) comprises:

2   (f1)   determining a number of subpackets contained within the packet.

1   6.   The method of claim 1 wherein the memory context comprises time slot
2   identification data.

1   7.   The method of claim 1 wherein the memory context comprises destination queue
2   identification data.

1   8.   The method of claim 1 wherein the memory context comprises enable data for
2   enabling a data stream.

1   9.   The method of claim 1 wherein the packet further comprises data identifying the
2   number of subpackets contained therein.

1   10.   The method of claim 1 wherein the asynchronous switch comprises a plurality of
2   destination ports and the packet further comprises data identifying to which of the
3   destination ports the packet will be supplied.

1   11.   The method of claim 2 wherein (c) comprises:
2   (c1)   storing memory context information for subpackets associated with each
3   of a plurality of different source time slots.

1   12.   The method of claim 11 wherein (c) comprises:
2   (c2)   maintaining associations between a plurality of source time slot identifiers
3   and a plurality of destination time slot identifiers.

1   13.   A method for processing data comprising:
2   (a)   converting a plurality of synchronous serial data streams, each associated
3   with a source time slot, into parallel data units;

31

4   (b)   constructing, in ingress memory, at least one subpacket from the parallel

5   data units associated with one of the source time slots,

6   (c)   retrieving ingress context data associated with the subpacket, the ingress

7   context data comprising a destination time slot identifier, a queue identifier, and an

8   enable varialble;

9   (d)   constructing, in each of a plurality of queues, a data packet from

10   subpackets and ingress context data associated with multiple source time slots, the

11   subpackets within the data packet completed within a synchronization interval, the data

12   packet further comprising i) at least one synchronization tag identifying the

13   synchronization interval , and ii) data identifying the number of subpackets contained in

14   the packet; and

15   (e)   upon completion of a data packet, providing the data packet to the

16   receiving mechanism.

1   14.   The method of claim 13 wherein (c) comprises:

2   (c1)   upon completion of a subpacket, reading from an ingress context memory the

3   ingress context data.

1   15.   A method for processing data comprising:

2   (a)   providing an apparatus having synchronization logic and an asynchronous

3   switch for routing synchronous signals among a synchronous network interface and an

4   asynchronous network interface and synchronization logic;

5   (b)   receiving a plurality synchronous serial data streams each from a different

6   source time slot;

7   (c)   constructing a data packet from a plurality of subpackets each derived

8   from one the synchronous serial data streams and a respective memory context

9   associated with each subpacket; and

10   (d)   routing the packet through the asynchronous switch to one of the

11   asynchronous network interface and the synchronous network interface.

32

1   16.   A method for processing data comprising:

2   (a)   receiving a data packet comprising a plurality of subpackets and ingress

3 context data associated with multiple source time slots, the subpackets within the data

4 packet completed within a synchronization interval, the data packet further comprising i)

5 at least one synchronization tag identifying the synchronization interval , and ii) data

6 identifying the number of subpackets contained in the packet;

7   (b)   writing a subpackets into one of a plurality of playout buffers within an

8 egress memory based on context data associated with the subpacket;

9   (c)   writing the subpacket to a position within one of the plurality of playout

10 buffers in accordance with the synchronization interval identified by the synchronization

11 tag plus a fixed address offset; and

12   (d)   sequentially reading the subpackets from the playout buffer.

1   17.   The method of claim 16 further comprising:

2   (e)   converting the data in the subpacket into serial synchronous data.

1   18.   The method of claim 16 wherein the context data associated with a subpacket

2 comprises a destination time slot identifier and wherein (b) comprises:

3   (b1)   writing a subpackets into one of a plurality of playout buffers within the

4 egress memory in accordance with the destination time slot identifier.